

WHAT IS CLAIMED IS:

1. (Currently Amended) A cosmetic or dermatological composition comprising at least one gradient copolymer comprising at least two different monomeric residues,

wherein at least one monomeric residue is a hydrophilic monomeric residue, which is present in an amount ranging from 2% to 70% by weight, relative to the total weight of the copolymer, chosen from residues of:

- derivatives of C₁-C₄ aminoalkyl (meth)acrylates

- C₁-C₄ N,N-dialkyl(meth)acrylamides and C₁-C₄ N,N-dialkylC₁-

C₆aminoalkyl(meth)acrylamides,

- C₁-C₈ dialkyldiallylamines;

- vinylamines;

- vinylpyridines;

acid salts thereof and quaternized forms thereof;

- ethylenic carboxylic acids;

- carboxylic anhydrides comprising at least one vinyl bond;

- ethylenic sulphonic acids and their salts;

- vinylbenzoic acids, vinylphosphonic acids and their salts;

- potassium salts of acryloyloxy-3-sulphopropyl, and the compounds of formula

CH₂=CHCOOCH₂OCH₂(OH)CH₂SO₃⁻Na⁺;

- amides of unsaturated carboxylic acids;

- hydroxyalkyl (meth)acrylates;

- (meth)acrylates of polyethylene glycol (5 to 100 EO) and of glycol, which may be additionally substituted on their terminal function by at least one group chosen from alkyl, phosphate, phosphonate and sulphonate groups;

- alkoxyalkyl (meth)acrylates;

- (meth)acrylates of polysaccharides;

- vinylamides;

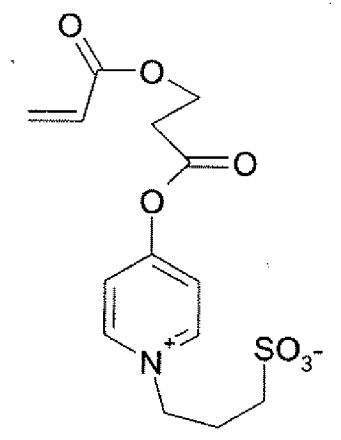
- vinyl ethers;

- methacrylamidopropoxytrimethylammoniumbetaines;

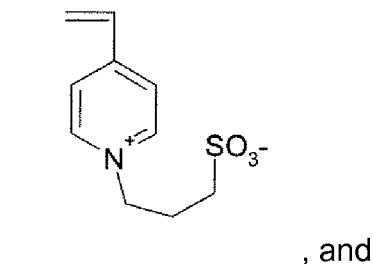
- N,N-dimethyl-N-methacryloxyethyl-N-(3-sulphopropyl)ammoniumbetaines,

- 3-methacryloylethoxycarbonylpyridiniums;

- a compound of formula:



- and 4-vinylpyridiniumsulphopropylbetaine of formula:



wherein at least one other monomeric residue results from at least one monomer which is capable of forming a homopolymer with a Tg less than or equal to 20°C, and which is present in an amount ranging from 10% to 90% by weight, relative to the total weight of the copolymer,

wherein the at least one gradient copolymer exhibits a mass polydispersity index (Ip) less than or equal to 2.5.

2. (Original) The composition according to Claim 1, wherein the at least one gradient copolymer exhibits a mass polydispersity index (Ip) ranging from 1.1 to 2.3.

3. (Original) The composition according to Claim 2, wherein the at least one gradient copolymer exhibits a mass polydispersity index (Ip) ranging from 1.15 to 2.0.

4. (Original) The composition according to Claim 3, wherein the at least one gradient copolymer exhibits a mass polydispersity index (Ip) ranging from 1.2 to 1.9.

5. (Original) The composition according to Claim 1, wherein the weight-average molecular weight of the at least one gradient copolymer ranges from 5,000 g/mol to 1,000,000 g/mol.

6. (Original) The composition according to Claim 5, wherein the weight-average molecular weight of the at least one gradient copolymer ranges from 5,500 g/mol to 800,000 g/mol.

7. (Original) The composition according to Claim 6, wherein the weight average molecular weight of the at least one gradient copolymer ranges from 6,000 g/mol to 500,000 g/mol.
8. (Original) The composition according Claim 1, wherein the number-average molecular weight of the at least one gradient copolymer ranges from 5,000 g/mol to 1,000,000 g/mol.
9. (Original) The composition according to Claim 8, wherein the number-average molecular weight of the at least one gradient copolymer ranges from 5,500 g/mol to 800,000 g/mol.
10. (Original) The composition according to Claim 9, wherein the number-average molecular weight of the at least one gradient copolymer ranges from 6,000 g/mol to 500,000 g/mol.
11. (Original) The composition according to Claim 1, wherein the at least one gradient copolymer comprises polymer chains comprising at least one monomeric residue, M_i , wherein there is a non-zero probability of finding the monomeric residue M_i along the polymer chain, regardless of the normalized position x on the polymer chain.
12. (Original) The composition according to Claim 1, wherein the at least one gradient copolymer is such that on a curve of liquid adsorption chromatography ("LAC"), which shows the proportion of polymers as a function of the elution volume, the difference ($V^{1/2}_{\max} - V^{1/2}_{\min}$) is less than or equal to 3.5, wherein " $V^{1/2}_{\min}$ " is the minimum value of the elution volume at mid-height of the curve, and " $V^{1/2}_{\max}$ " is the maximum value of the elution volume at mid-height of the curve.

13. (Original) The composition according to Claim 12, wherein the difference ($V^{1/2}_{\text{max}} - V^{1/2}_{\text{min}}$) ranges from 1 to 2.8.

14. (Original) The composition according to Claim 13, wherein the difference ($V^{1/2}_{\text{max}} - V^{1/2}_{\text{min}}$) ranges from 1.2 to 2.5.

Claims 15-20. (Cancelled).

21. (Previously Presented) The composition according to Claim 1, wherein the at least one hydrophilic monomeric residue is present in an amount ranging from 5% to 50% by weight, relative to the total weight of the copolymer.

22. (Original) The composition according to Claim 21, wherein the at least one hydrophilic monomeric residue is present in an amount ranging from 10% to 30% by weight, relative to the total weight of the copolymer

23. (Cancelled).

24. (Previously Presented) The composition, according to Claim 1, wherein the homopolymer has a Tg ranging from -150°C to 20°C.

25. (Original) The composition, according to Claim 24, wherein the homopolymer has a Tg ranging from -130°C to 18°C.

26. (Original) The composition, according to Claim 25, wherein the homopolymer has a Tg ranging from -120°C to 15°C.

Claims 27-28 (Cancelled).

29. (Previously Presented) The composition according to Claim 1, wherein the at least one monomeric residue which is capable of forming a homopolymer with a Tg less than or equal to 20°C is present in an amount ranging from 20% to 80% by weight, relative to the total weight of the copolymer.

30. (Original) The composition according to Claim 29, wherein the at least one monomeric residue is present in an amount ranging from 50% to 75% by weight, relative to the total weight of the copolymer.

31. (Cancelled).

32. (Currently Amended) The composition according to Claim [[31]] 1, wherein the derivatives of C₁-C₆ aminoalkyl (meth)acrylates are chosen from N,N-di(C₁-C₄)alkylamino(C₁-C₆)alkyl (meth)acrylates.

33. (Original) The composition according to Claim 32, wherein the N,N-di(C₁-C₄)alkylamino(C₁-C₆)alkyl (meth)acrylates are chosen from N,N-dimethylaminoethyl methacrylate (MADAME) and N,N-diethylaminoethyl methacrylate (DEAMEA).

34. (Currently Amended) The composition according to Claim [[31]] 1, wherein the C₁-C₄ N,N-dialkyl(meth)acrylamides and C₁-C₄N,N-dialkylC₁-C₆aminoalkyl(meth)acrylamides are chosen from N,N-dimethylacrylamide, N,N-dimethylaminopropylacrylamide (DMPAA), and N,N-dimethylaminopropylmethacrylamide (DMPMA).

35. (Currently Amended) The composition according to Claim [[31]] 1,, wherein the C₁-C₈ dialkyldiallylamines are chosen from dimethyldiallylamine.

36. (Currently Amended) The composition according to Claim [[31]] 1,, wherein the vinylpyridines are chosen from 2-vinylpyridine and 4-vinylpyridine.

37. (Currently Amended) The composition according to Claim [[31]] 1,, wherein the ethylenic carboxylic acids are chosen from acrylic, methacrylic, crotonic, itaconic, fumaric, and maleic acids.

38. (Currently Amended) The composition according to Claim 37, wherein the ethylenic carboxylic acids are chosen from acrylic acid.
39. (Currently Amended) The composition according to Claim [[31]] 1,, wherein the carboxylic anhydrides comprising at least one vinyl bond are chosen from maleic anhydride.
40. (Currently Amended) The composition according to Claim [[31]] 1,, wherein the ethylenic sulphonic acids are chosen from styrenesulphonic acid and acrylamidopropanesulphonic acid.
41. (Currently Amended) The composition according to Claim [[31]] 1,, wherein the amides of unsaturated carboxylic acids are chosen from acrylamide, methacrylamide, and their N-substituted derivatives.
42. (Original) The composition according to Claim 41, wherein the N-substituted derivatives are chosen from C₁-C₄ N-alkyl(meth)acrylamides and C₁-C₄ N,N-dialkyl(meth)acrylamides.
43. (Original) The composition according to Claim 42, wherein the C₁-C₄ N-alkyl(meth)acrylamides are chosen from N-methylacrylamide.
44. (Original) The composition according to Claim 42, wherein the C₁-C₄ N,N-dialkyl(meth)acrylamides are chosen from N,N-dimethylacrylamide.
45. (Currently Amended) The composition according to Claim [[31]] 1, wherein the hydroxyalkyl (meth)acrylates are chosen from those wherein the alkyl group comprises from 2 to 4 carbon atoms.
46. (Original) The composition according to Claim 45, wherein the hydroxyalkyl (meth)acrylates are chosen from hydroxyethyl (meth)acrylate.

47. (Currently Amended) The composition according to Claim [[31]] 1, wherein the (meth)acrylates of polyethylene glycol (5 to 100 EO) and of glycol, which may be additionally substituted on their terminal function by at least one group chosen from alkyl, phosphate, phosphonate and sulphonate groups, are chosen from glycerol acrylates, methoxypolyethylene glycols (meth)acrylates (8 and 12 EO), and hydroxypolyethylene glycol (meth)acrylates.

48. (Currently Amended) The composition according to Claim [[31]] 1, wherein the alkoxyalkyl (meth)acrylates are chosen from ethoxyethyl (meth)acrylates.

49. (Currently Amended) The composition according the Claim [[31]] 1, wherein the (meth)acrylates of polysaccharides are chosen from sucrose acrylate.

50. (Currently Amended) The composition according the Claim [[31]] 1, wherein the vinylamides are chosen from vinyl acetamide and cyclic vinylamides.

51. (Original) The composition according to Claim 50, wherein the cyclic vinylamides are chosen from vinyl lactams.

52. (Original) The composition according to Claim 51, wherein the vinyl lactams are chosen from N-vinylpyrrolidones and N-vinylcaprolactams.

53. (Currently Amended) The composition according the Claim [[31]] 1, wherein the vinyl ethers are chosen from vinyl methyl ether.

54. (Previously Presented) The composition according to Claim 1, wherein the at least one gradient copolymer comprises at least one hydrophilic monomeric residue chosen from residues of N,N-dimethylaminoethyl methacrylate (MADAME), acrylic acid, methacrylic acid, crotonic acid, styrenesulphonic acid, acrylamidopropanesulphonic acid, dimethylaminopropylmethacrylamide (DMAPMA),

styrene sulphonate, hydroxyethyl acrylate, glycerol acrylate, ethoxyethyl methacrylate, ethoxyethyl acrylate, methoxypolyethylene glycol (meth)acrylate (8 and 12 EO), hydroxypolyethylene glycol (meth)acrylate, N-vinylpyrrolidone, N-vinylcaprolactam, acrylamides, and N,N-dimethylacrylamide.

55. (Original) The composition according to Claim 1, wherein the at least one gradient copolymer comprises at least one monomeric residue chosen from residues of C₁-C₄ alkyl (meth)acrylates, leading to (meth)acrylic acid after hydrolysis.

56. (Original) The composition according to Claim 55, wherein the C₁-C₄ alkyl (meth)acrylates are chosen from *tert*-butyl (meth)acrylates and ethyl (meth)acrylates.

57. (Original) The composition according to Claim 1, wherein the at least one gradient copolymer comprises at least one monomeric residue resulting from at least one monomer capable of forming a homopolymer with a T_g less than or equal to 20°C, wherein the at least one monomer is chosen from:

- ethylenic hydrocarbons comprising from 2 to 10 carbons,;
- acrylates with the formula CH₂=CHCOOR₁, wherein R₁ is chosen from saturated and unsaturated hydrocarbon groups, comprising from 1 to 12 carbons, which may be linear and branched with the exception of the *tert*-butyl group, optionally comprising at least one heteroatom chosen from O, N, S, and Si, wherein the alkyl groups are optionally substituted by at least one substituent chosen from hydroxyl groups and halogen atoms chosen from Cl, Br, I and F;

R₁ can also be chosen from groups of formula: -(R'')_x-(OC₂H₄)_n-OR', wherein x is an

integer chosen from 0 and 1, R" is chosen from saturated and unsaturated, linear and branched hydrocarbon groups, comprising from 1 to 12 carbon atoms, n is an integer chosen from 5 to 100 and R' is chosen from H and CH₃;

- methacrylates with formula: CH₂=C(CH₃)-COOR₂,

wherein R₂ is chosen from saturated and unsaturated, linear and branched, hydrocarbon groups, comprising from 3 to 12 carbon atoms, optionally comprising at least one heteroatom chosen from O, N, S and Si, wherein the alkyl groups are optionally substituted by at least one substituent chosen from hydroxyl groups and halogen atoms chosen from Cl, Br, I, and F; R₂ is also chosen from groups of formula: – (R")_x-(OC₂H₄)_n-OR', wherein x is an integer chosen from 0 and 1, R" is chosen from saturated and unsaturated, linear and branched, hydrocarbon groups comprising from 1 to 12 carbon atoms, n is an integer chosen from 5 to 100, and R' is chosen from H and CH₃;

- N- and N,N-substituted derivatives of amides of C₁₋₁₂ unsaturated carboxylic acids;

- vinyl esters of formula: R₃-CO-O-CH=CH₂ wherein R₃ is chosen from linear and branched alkyl groups comprising from 2 to 12 carbon atoms; and

- vinyl alkyl ethers comprising from 1 to 12 carbon atoms.

58. (Original) The composition according to Claim 57, wherein the ethylenic hydrocarbons comprising from 2 to 10 carbons are chosen from ethylenes, isoprenes, and butadienes.

59. (Original) The composition according to Claim 57, wherein the N- and N,N-substituted derivatives of amides of C₁₋₁₂ unsaturated carboxylic acids are chosen from C₁₋₁₂ N-alkyl(meth)acrylamides.

60. (Original) The composition according to Claim 59, wherein the C₁₋₁₂ N-alkyl(meth)acrylamides are chosen from N-octylacrylamide.

61. (Original) The composition according to Claim 57, wherein the vinyl esters are chosen from vinyl propionates, vinyl butyrates, vinyl ethylhexanoates, vinyl neononanoates, and vinyl neododecanoates.

62. (Original) The composition according to Claim 57, wherein the vinyl alkyl ethers comprising from 1 to 12 carbon atoms are chosen from vinyl methyl ethers, and vinyl ethyl ethers.

63. (Original) The composition according to Claim 1, wherein the at least one gradient copolymer comprises at least one monomeric residue, said at least one monomeric residue resulting from at least one monomer which is capable of forming a homopolymer with a T_g less than or equal to 20°C, wherein the at least one monomer is chosen from:

- isoprenes and butadienes;
- methyl, ethyl, isobutyl, n-butyl, ethylhexyl, methoxyethyl, ethoxyethyl and hydroxypolyethylene glycol acrylates;
- ethoxyethyl, hexyl, ethylhexyl and hydroxypolyethylene glycol methacrylates;
- C₆₋₁₂ N-alkyl(meth)acrylamides;
- vinyl esters with the formula: R₃-CO-O-CH=CH₂ wherein R₃ is chosen from linear and branched alkyl groups comprising from 6 to 12 carbon atoms.

64. (Original) The composition according to Claim 63, wherein the C₆₋₁₂ N-alkyl(meth)acrylamides are chosen from N-octylacrylamide.

65. (Original) The composition according to Claim 63, wherein the vinyl esters are chosen from vinyl neononanoates and vinyl neododecanoates.

66. (Original) The composition according to Claim 1, wherein the at least one gradient copolymer comprises at least one monomeric residue, said at least one monomeric residue resulting from at least one monomer which is capable of forming a homopolymer with a T_g greater than or equal to 20°C, wherein the at least one monomer is chosen from:

- vinyl compounds with the formula: CH₂=CH-R₄, wherein R₄ is chosen from hydroxyl group; -NH-C(O)-CH₃ group, -OC(O)-CH₃ group, C₃-C₈ cycloalkyl groups; C₆-C₂₀ aryl groups; C₇ to C₃₀ aralkyl groups (C₁-C₄ alkyl groups); heterocyclic groups comprising from 4 to 12 chain members comprising at least one heteroatom chosen from O, N and S; heterocyclalkyl groups (C₁-C₄ alkyl); wherein the cycloalkyl, aryl, aralkyl, heterocyclic, and heterocyclalkyl groups are optionally substituted by at least one substituent chosen from hydroxyl group, halogen atoms, and linear and branched alkyl groups comprising from 1 to 4 carbon atoms, optionally comprising at least one heteroatom chosen from O, N, S and P, and wherein the alkyl groups are optionally substituted by at least one substituent chosen from hydroxyl group, halogen atoms chosen from Cl, Br, I and F, and Si;

- acrylates with the formula CH₂=CH-COOR₅, wherein R₅ is chosen from *tert*-butyl groups, C₃-C₈ cycloalkyl groups; C₆-C₂₀ aryl groups; C₇-C₃₀ aralkyl groups (C₁-C₄ alkyl groups); heterocyclic groups comprising from 4 to 12 chain members comprising at least one heteroatom chosen from O, N, and S; heterocyclalkyl groups (C₁-C₄ alkyl); wherein the cycloalkyl, aryl, aralkyl, heterocyclic and heterocyclalkyl groups are

optionally substituted by at least one substituent chosen from hydroxyl group, halogen atoms, and linear and branched C₁-C₄ alkyl groups optionally comprising at least one heteroatom chosen from O, N, S and P, wherein the alkyl groups are optionally substituted by at least one substituent chosen from hydroxyl groups, halogen atoms chosen from Cl, Br, I and F, and Si;

- methacrylates with the formula CH₂=C(CH₃)-COOR₆, wherein R₆ is chosen from linear and branched alkyl groups comprising from 1 to 4 carbon atoms, wherein the alkyl groups are optionally substituted by at least one substituent chosen from hydroxyl group, halogen atoms chosen from Cl, Br, I and F) and Si; C₃-C₈ cycloalkyl groups; C₆-C₂₀ aryl groups; C₇-C₃₀ aralkyl groups (C₁-C₄ alkyl groups); heterocyclic groups comprising from 4 to 12 chain members comprising at least one heteroatom chosen from O, N, and S; heterocyclalkyl groups (C₁-C₄ alkyl); wherein the cycloalkyl, aryl, aralkyl, heterocyclic and heterocyclalkyl groups are optionally substituted by at least one substituent chosen from hydroxyl group, halogen atoms, and linear and branched alkyl groups comprising from 1 to 4 carbon atoms, optionally comprising at least one heteroatom chosen from O, N, S and P, wherein the alkyl groups are optionally substituted by at least one substituent chosen from hydroxyl group and halogen atoms chosen from Cl, Br, I and F;

- (meth)acrylamides with the formula: CH₂=C(R')-CO-NR₇R₈,

wherein R₇ and R₈, which may be identical or different, are chosen from hydrogen and linear and branched alkyl groups comprising from 1 to 12 carbon atoms, and R' is chosen from H and methyl.

67. (Original) The composition according to Claim 66, wherein the heterocyclalkyl groups (C₁-C₄ alkyl) are chosen from furfuryl groups.

68. (Original) The composition according to Claim 66, wherein the linear and branched alkyl groups comprising from 1 to 4 carbon atoms, are chosen from methyl, ethyl, propyl and isobutyl groups.

69. (Original) The composition according to Claim 66, wherein the linear or branched alkyl groups comprising from 1 to 12 carbon atoms are chosen from n-butyl, t-butyl, isopropyl, isohexyl, isooctyl, and isononyl groups.

70. (Original) The composition according to Claim 1, wherein the at least one gradient copolymer comprises at least one monomeric residue, said at least one monomeric residue resulting from at least one monomer which is capable of forming a homopolymer with a T_g greater than or equal to 20°C, wherein the at least one monomer is chosen from:

- furfuryl, isobornyl, *tert*-butyl, *tert*-butylcyclohexyl and *tert*-butylbenzyl acrylates;
- methyl, n-butyl, ethyl and isobutyl methacrylates,
- styrene, styrene sulphonates;
- vinyl acetates and vinylcyclohexanes.

71. (Original) The composition according to Claim 1, wherein the at least one gradient copolymer is present in an amount ranging from 0.1 to 60% by weight, relative to the total weight of the composition.

72. (Original) The composition according to Claim 71, wherein the at least one gradient copolymer is present in an amount ranging from 0.5% to 40% by weight, relative to the total weight of the composition.

73. (Original) The composition according to Claim 72, wherein the at least one gradient copolymer is present in an amount ranging from 1% to 35% by weight, relative to the total weight of the composition.

74. (Original) The composition according to Claim 73, wherein the at least one gradient copolymer is present in an amount ranging from 5% to 30% by weight, relative to the total weight of the composition.

75. (Original) The composition according to Claim 1, wherein the at least one gradient copolymer is present in dissolved form or else in the form of an aqueous or organic dispersion.

76. (Original) The composition according to Claim 75, wherein the dissolved form is present in water or an organic solvent.

77. (Original) The composition according to Claim 1, comprising at least one additional constituent chosen from water; hydrophilic and lipophilic organic solvents; waxes of animal, vegetable, mineral and synthetic origin; pasty fats and gums of animal, vegetable, mineral and synthetic origin; hydrocarbon oils of animal, vegetable, mineral and synthetic origin; hydroxylated esters; polyol esters; alcohols comprising from 12 to 26 carbon atoms; fluorinated oils partially hydrocarbonized and/or siliconized; silicone oils; ketones that are liquid at room temperature; propyleneglycol ethers that are liquid at room temperature; esters comprising from 3 to 8 carbon atoms; ethers that are liquid at room temperature; alkanes that are liquid at room temperature; aromatic cyclic compounds that are liquid at room temperature; aldehydes that are liquid at room temperature; water-soluble colorants; liposoluble colorants; pulverulent colouring matter; fillers; film-forming polymers; vitamins; thickening agents; gelling

agents; trace elements; softeners; sequestering agents; perfumes; alkalizing and acidifying agents; preservatives; sun filters; surfactants; antioxidants; agents for preventing hair loss; anti-filming agents; propellants; and ceramides.

78. (Original) The composition according to Claim 77, wherein said silicone oils are chosen from oils that are volatile and non-volatile, linear and cyclic, liquid and pasty at room temperature, and optionally comprising phenyl groups, such as polymethylsiloxanes (PDMS),

79. (Original) The composition according to Claim 1, wherein the composition is in the form chosen from suspensions, dispersions, solutions, gels, emulsions, creams, pastes, foams, dispersions of vesicles, biphasic and multiphase lotions, sprays, and powders.

80. (Original) The composition according to Claim 79, wherein said emulsions are chosen from oil-in-water (O/W) emulsions, water-in-oil (W/O) emulsions, and multiple emulsions (W/O/W or polyol/O/W or O/W/O).

81. (Original) The composition according to Claim 79, wherein said dispersions of vesicles are chosen from ionic and non ionic lipids.

82. (Original) The composition according to Claim 79, wherein said pastes are chosen from flexible pastes.

83. (Original) The composition according to Claim 1, wherein the cosmetic or dermatological composition is chosen from, make-up compositions; make-up products for the body; make-up products for the hair; compositions for protection and care of the skin, of the face, of the neck, of the hands and of the body; sun-protection and artificial tanning compositions; and hair-care products.

84. (Original) The composition according to Claim 83, wherein the make-up compositions are chosen from products for the complexion; products for the lips; anti-ring products; blushers; mascaras; eyeliners; products for the eyebrows, lip and eye pencils; and products for the nails.

85. (Original) The composition according to Claim 84, wherein the make-up products for the complexion are chosen from foundations, blushers and eyeshadows.

86. (Original) The composition according to Claim 84, wherein the products for the lips are chosen from lipsticks and lip-care products.

87 (Original) The composition according to Claim 84, wherein the products for the nails are chosen from nail varnishes and nail-care products.

88. (Original) The composition according to Claim 83, wherein the compositions for protection and care of the skin, of the face, of the neck, of the hands and of the body are chosen from anti-wrinkle and anti-fatigue compositions that are able to give the skin a fresh appearance, moisturizing compositions, and treatment compositions.

89. (Original) The composition according to Claim 83, wherein the hair-care products are chosen from hairdressing and hair styling, shampoo, gel, setting lotion, brushing lotion, fixing, and styling compositions.

90. (Original) The composition according to Claim 89, wherein the styling compositions are chosen from lacquers and sprays.

91. (Currently Amended) A cosmetic or dermatological method for treating keratinous substances comprising applying to the keratinous substances a

cosmetic or dermatological composition comprising at least one gradient copolymer comprising at least two different monomeric residues,

wherein at least one monomeric residue is a hydrophilic monomeric residue, which is present in an amount ranging from 2% to 70% by weight, relative to the total weight of the copolymer, chosen from residues of:

- derivatives of C₁-C₄ aminoalkyl (meth)acrylates

- C₁-C₄ N,N-dialkyl(meth)acrylamides and C₁-C₄ N,N-dialkylC₁-

C₆aminoalkyl(meth)acrylamides,

- C₁-C₈ dialkyldiallylamines;

- vinylamines;

- vinylpyridines;

acid salts thereof and quaternized forms thereof;

- ethylenic carboxylic acids;

- carboxylic anhydrides comprising at least one vinyl bond;

- ethylenic sulphonic acids and their salts;

- vinylbenzoic acids, vinylphosphonic acids and their salts;

- potassium salts of acryloyloxy-3-sulphopropyl, and the compounds of formula

$\text{CH}_2=\text{CHCOOCH}_2\text{OCH}_2(\text{OH})\text{CH}_2\text{SO}_3^-\text{Na}^+$;

- amides of unsaturated carboxylic acids;

- hydroxyalkyl (meth)acrylates;

- (meth)acrylates of polyethylene glycol (5 to 100 EO) and of glycol, which may be additionally substituted on their terminal function by at least one group chosen from alkyl, phosphate, phosphonate and sulphonate groups;

- alkoxyalkyl (meth)acrylates;

- (meth)acrylates of polysaccharides;

- vinylamides;

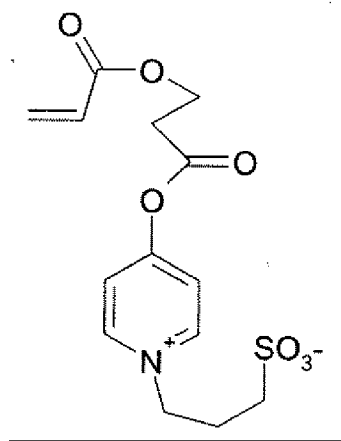
- vinyl ethers;

- methacrylamidopropoxytrimethylammoniumbetaines;

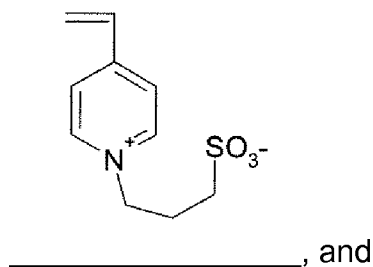
- N,N-dimethyl-N-methacryloxyethyl-N-(3-sulphopropyl)ammoniumbetaines,

- 3-methacryloylethoxycarbonylpyridiniums;

- a compound of formula:



- and 4-vinylpyridiniumsulphopropylbetaine of formula:



wherein at least one other monomeric residue results from at least one monomer
which is capable of forming a homopolymer with a Tg less than or equal to 20°C, and

which is present in an amount ranging from 10% to 90% by weight, relative to the total weight of the copolymer,

wherein the at least one gradient copolymer exhibits a mass polydispersity index (Ip) less than or equal to 2.5.